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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/754,457	01/09/2004	Thomas Kodadek	UTSD:935US	8798

7590 08/29/2007  
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EXAMINER
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LAM, ANN Y

ART UNIT	PAPER NUMBER
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1641

MAIL DATE	DELIVERY MODE
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08/29/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/754,457

**Applicant(s)**

KODADEK, THOMAS

**Examiner**

Ann Y. Lam

**Art Unit**

1641

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 May 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) 28-43 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-6,10,13-17 and 21 is/are rejected.
- 7) ☒ Claim(s) 2,7-9,11,12,18-20 and 22-27 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 7/2/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Election/Restrictions***

Applicant's election of Group I (claims 1-27) in the reply filed on May 18, 2007 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claims 28-43 withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 3-6, 10, 13-17, 21-27 are rejected under 35 U.S.C. 102(e) as being anticipated by Mirkin et al., 6,361,944.

As to claim 1, Mirkin et al. teach oligonucleotides attached to a substrate having a sequence complementary to a first portion of the sequence of a nucleic acid to be detected. The nucleic acid is contacted with the substrate to allow hybridization of the oligonucleotides on the substrate with the nucleic acid. Next the nucleic acid bound to the substrate is contacted with a first type of nanoparticles having oligonucleotides attached which have a sequence complementary to a second portion of the sequence of the nucleic acid. The oligonucleotides on the first type of nanoparticles may all have the same sequence or may have different sequences that hybridize with different portions of the nucleic acid to be detected. The first type of nanoparticle-oligonucleotide conjugates bound to the substrate is contacted with a second type of nanoparticles having oligonucleotides attached which have a sequence complementary to at least a portion of the sequences of oligonucleotides attached to the first type of nanoparticles. The combination of hybridization produces an amplification of the detectable change (col. 21, line 43 – col. 22, line 26.) The oligonucleotides attached to the substrate is equivalent to Applicant's composition comprising a plurality of low to moderate affinity binding elements wherein concomitant binding of the first target molecule to two or more of the binding elements (i.e., portions of the oligonucleotides attached to the substrate) results in a high affinity interaction with the target.

As to claim 3, the different portions of the oligonucleotides attached to the substrate have distinct binding specificity (see col. 21, lines 64-67, showing that the different portions of the nucleic acid to be detected have different sequences, and thus

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portions of oligonucleotides that are complementary to its sequence will have distinct binding specificity, i.e., distinct nucleic acid hybridization).

As to claim 4, the different portions of the oligonucleotide (i.e., the first and second binding elements) attached to the substrate are coupled to each other and thus are considered to be operatively coupled to each other.

As to claim 5, different portions of the oligonucleotides that are not adjacent to each other are considered to have a spacer in between them, and such portions are deemed to be Applicant's first binding element and second binding elements respectively.

As to claim 6, a portion of the oligonucleotide attached to the substrate is considered to be an oligomer.

As to claim 10, a different portion of the oligonucleotide attached to the substrate is considered to be the first binding element, and it comprises a nucleic acid.

As to claim 13, a plurality of nucleic acids (i.e., plurality of first binding elements described in the discussion of claim 10 above) are coupled to the oligomer described in the discussion of claim 6 above.)

As to claim 14, the support is a glass slide (col. 21, line 33.)

As to claim 15, the type of sample to be used with the claimed composition is part of an intended use of the composition, and the composition is capable of being used with an environmental sample or blood sample.

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As to claim 16, the first target molecule is considered to be the complex comprising the analyte and second type of nanoparticles having oligonucleotides attached described by Mirkin et al. (col. 21, line 48 and col. 22, lines 11-12.)

As to claim 17, the first target molecule is a biological molecule (nucleic acid.)

As to claim 21, the oligonucleotides attached to the substrate (col. 21, line 43) are considered to be randomly distributed on the support since there is no disclosure of a pattern of oligonucleotides on the substrate.

### ***Allowable Subject Matter***

Claims 2, 7-9, 11, 12, 18-20 and 22-27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ann Y. Lam whose telephone number is 571-272-0822. The examiner can normally be reached on Mon.-Fri. 10-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long Le can be reached on 571-272-0823. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



ANN YEN LAM  
PATENT EXAMINER